

Towards the design of iCALL tools for beginner mandarin chinese learners in Ireland

Hongfei Wang¹ and Neasa Ní Chiaráin²

Abstract. The teaching of spoken Chinese in the context of post-primary education in Ireland faces several complexities. Learners of Mandarin Chinese as a Foreign Language (CFL), including both Irish and heritage learners, have demonstrated difficulty in learning spoken Chinese. This exploratory research is part of a larger project which aims to develop appropriate ad hoc intelligent Computer-Assisted Language Learning (iCALL) solutions by providing visualised instruction and a gamified feedback system for Mandarin tone acquisition, and using a spoken dialogue system to create a simulated virtual environment for practising spoken Chinese. This paper presents a qualitative needs analysis, in the form of semi-structured interviews, which has been conducted with 12 CFL teachers with various linguistic and sociocultural backgrounds. It aims to investigate learners' difficulty in learning spoken Chinese and teachers' willingness to implement technology in CFL curricula.

Keywords: iCALL, needs analysis, Chinese as a foreign language, spoken language acquisition.

1. Introduction

Chinese language education has been officially introduced to Irish post-primary education for seven years. The teaching of CFL faced several complexities, and the uptake of the subject has been relatively low (Zhang & Wang, 2018, p. 36). The first major obstacle is the shortage of suitably qualified teachers, as required by the Irish educational policy (Zhang & Wang, 2018, p. 41). A second major obstacle is that the majority of CFL learners have little or no exposure

1. Trinity College Dublin, Dublin, Ireland; wangh5@tcd.ie; <https://orcid.org/0000-0001-7924-2683>

2. Trinity College Dublin, Dublin, Ireland; neasa.nichiarain@tcd.ie; <https://orcid.org/0000-0002-4669-5667>

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to a Chinese language environment and therefore lack any opportunity to communicate in Chinese outside designated class hours. It is within this context that we present exploratory research towards developing appropriate ad hoc iCALL solutions to address the issues regarding the teaching and learning of spoken Chinese at beginner level in Irish post-primary schools. This paper is the first step in ascertaining teachers' difficulties in teaching spoken Chinese as well as their opinions on the proposed iCALL tools and their willingness to use such technology.

2. Method

2.1. Instrument and data analysis

A semi-structured qualitative interview was adopted as the research instrument for needs analysis. Nine interview questions were prepared, three of which are presented here. The questions relate to the following issues:

- What are the main challenges in teaching spoken Chinese in an Irish context?
- To what extent is the technology currently incorporated into CFL teaching in Irish post-primary schools?
- Would CFL teachers be willing to use digital and iCALL tools in their classrooms?

The data from the question items was coded by the researchers (e.g. lack of language exposure, unfamiliar with Chinese phonology) and then content analysed for patterns.

2.2. Participants

A total of 12 individual interviews were conducted (see [Table 1](#) below). Each interview lasted about 20 minutes.

Five interviews were conducted face-to-face in a place of the interviewees' choosing, while another seven interviews were conducted online. All interviews were audio recorded for later transcription.

Table 1. Demographic information of the teachers

Number of teachers	Number of teachers with > 3 years' experience	Teacher background	Learner background	Learner level/goal
4	2	Irish, teaching Irish students in secondary schools	Irish second level transition year (NCCA, 2012) students	Very basic, taster course
4	3	Chinese, teaching Irish students in secondary schools	Irish second level students in a school that has introduced Chinese – including both transition year and junior cycle Chinese courses (DES, 2017, p. 16)	CEFR A2 in both spoken and written proficiency
4	1	Chinese, teaching Chinese students in Chinese community schools	Irish students of Chinese parents who speak in various Chinese dialects but not Mandarin	Fluent in dialect but wish to acquire Mandarin pronunciation
Total: 12	Total: 6	Total: 4 Irish, 8 Chinese	All second level students	Varying from very basic to native speakers

3. Results

3.1. The main challenges currently faced by teachers in teaching spoken Chinese

The acquisition of Mandarin Chinese pronunciation. All three groups of interviewees cited learners' difficulty in perceiving and producing Mandarin Chinese tones as a significant challenge. For Irish CFL learners, the Chinese prosodic system is an entirely different system to be acquired. While for the Chinese heritage learners, they have already acquired models that are in many instances close to Mandarin, but due to language transfer, they had difficulty in incorporating these models in learning and using Mandarin Chinese.

Insufficient opportunity to practise spoken Chinese outside of designated class hours. Irish CFL learners generally do not have access to Chinese speakers.

Chinese speakers in Ireland typically have a high proficiency in English. Therefore, it was perceived that there was no ‘need’ for the Chinese to speak Mandarin to the Irish. For the Chinese heritage learners, they are immersed in a dialect environment at home while in public they are exposed to an English-speaking environment. Their other Chinese friends would speak either the same or a different dialect to themselves, and they tend to communicate either through dialect or through English, but not through Mandarin Chinese. Since they do not have exposure to the Chinese culture outside the home, culture embedded common expressions are often poorly grasped and as a consequence are used less and less.

3.2. The currently incorporated technologies in CFL teaching in Irish post-primary schools

Results show that some technology was adopted for language teaching and learning, but not much in the context of CFL classrooms. Eight of 12 interviewed teachers reported using online videos to demonstrate Chinese pronunciation. Irish CFL teachers often used these video demos as a model for their students as they were not confident in their ability to produce the correct pronunciation. Native Chinese teachers recommend their students use these videos as extra practice material. Duolingo, Pleco, and Memrise were also mentioned by three of the teachers. Three teachers reported never using technology, but this is due to practical reasons. Two native Chinese teachers reported that they never use technology in their CFL classroom because the necessary facilities are not available to them, while one Irish teacher commented that school policy on technology use was her reason for not pursuing technology use.

3.3. The willingness to use digital and iCALL tools in CFL classrooms

During the interviews, the interviewer briefly introduced the proposed iCALL tools to the teachers. Teachers demonstrated a very positive attitude towards the potential of using iCALL tools in the classroom. One of the Irish teachers bemoaned the lack of opportunity to practise and mentioned how she would find even a virtual Chinese interlocutor incredibly useful. Interaction is essential in language learning, and this was reflected in the results of the interviews; six of the 12 teachers emphasised the lack of interaction their learners had with Chinese speakers and commented on the need for tools to help with this. Optimising the language learning environment is crucial to enhance language learning (Young, 1991, p. 426). Three of the eight native Chinese teachers made this point strongly. They agreed that even a virtual world context could provide the necessary structures for their beginner learners.

All the teachers expressed a willingness to try new technology as it would come onstream and were very keen to be kept informed of any new developments in the field.

4. Discussion and future work

The results of the interviews indicated two distinct but interrelated issues in young learners' study of spoken Chinese in an Irish context. Based on these results, we propose a potential iCALL tool that could support the CFL learners. The first element of the iCALL tool would be a tone visualisation game, designed to address the issues in Mandarin tone acquisition. Learners would produce tones themselves in a game environment and see visualisations of their productions. Instant visual feedback would be incorporated insofar as the productions would be compared with the standard pronunciations. The gamification is proposed to increase enjoyment as well as to provide an immersive experience, which helps learners better perceive and more willingly produce Mandarin tones. The second part of the iCALL tool would be a spoken dialogue system as a virtual language partner (see [Ní Chiaráin & Ní Chasaide, 2016](#)). It would allow learners to practise communicating in Mandarin Chinese in a simulated, authentic Chinese environment in a virtual world.

5. Conclusions

The interviews provided insight into the main issues facing teachers, which formed the basis of the iCALL tool proposed and its evaluation in the future. More specific issues that emerged as part of the interview, such as the differences in Chinese and English phonological systems and the negative transfer of dialects in Mandarin tone acquisition, have further informed the content and the design of the tool. As teachers and learners indicated a willingness to use such a tool in the classroom, the next step of the research will be the design of this conceptualised iCALL tool.

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